

ELECTRONEGATIVITY

The electronegativity of an atom denotes its relative electron-attracting power in a chemical bond.

It is important to understand that electronegativity is not a measurable property of an atom in the sense that ionization energies and electron affinities are, although it can be correlated with both of these properties.

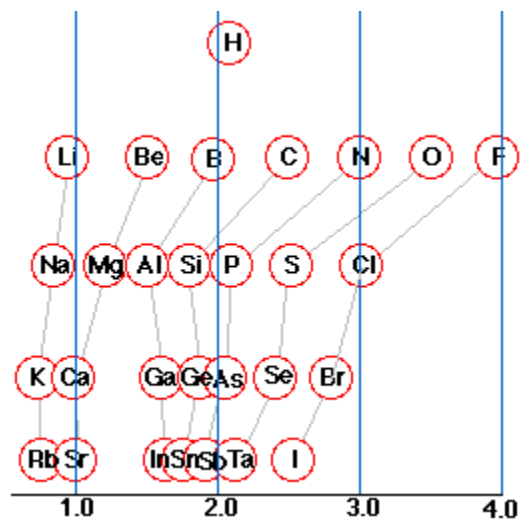
The actual electron-attracting power of an atom depends in part on its chemical environment (that is, on what other atoms are bonded to it), so tabulated electronegativities should be regarded as no more than predictors of the behavior of electrons, especially in more complicated molecules.

There are several ways of computing electronegativities, which are expressed on an arbitrary scale. The concept of electronegativity was introduced by Linus Pauling and his 0-4 scale continues to be the one most widely used.

Electronegativities of the main-group elements

The 0-4 electronegativity scale of Pauling is the best known of several arbitrary scales of this kind. Electronegativity values are not directly observable, but are derived from

measurable atomic properties properties such as ionization energy and electron affinity. The place of any atom on this scale provides a good indication of its ability to compete with another atom in



attracting a shared electron pair to it, but the presence of bonds to other atoms, and of multiple- or nonbonding electron pairs may make predictions about the nature a given bond less reliable.

An atom that has a small electronegativity is said to be electropositive.

As the diagram shows, the metallic elements are generally electropositive. The position of hydrogen in this regard is worth noting; although physically a nonmetal, much of its chemisry is metal-like.

Source: <http://www.chem1.com/acad/webtext/chembond/cb04.html>